
SOME OBSERVATIONS ON THE PIG-NOSED TURTLE (*CARETTOCHELYS INSCULPTA*) IN NORTHERN AUSTRALIA

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The Pig-nosed Turtle or Warradjan *Carettochelys insculpta* is a large freshwater turtle that inhabits permanent water, both lentic and lotic, in northern Australia and southern New Guinea (Groombridge 1982; Cogger 1986). As the sole surviving member of a once widespread group, the species has generated considerable scientific interest (Pritchard 1979; Groombridge 1982; Frair 1985; Webb *et al.* 1986).

First described in 1886 from a specimen taken in the Fly River of Papua New Guinea (Ramsay 1886; Waite 1905), its existence in Australia was not widely known until recently (Cogger 1970; Peters 1970). At first, it was not certain whether the Australian populations were self-sustaining or whether they merely represented non-breeding outliers of the New Guinea populations (Cogger 1970). However, in 1972 a specimen from the South Alligator River was found to have enlarged oviducts and fresh corpora lutea on the ovary (both indications of egg-laying) (Schodde *et al.* 1972), and more recently clutches of eggs have been collected from the Daly River (Webb *et al.* 1986; Georges 1987; Georges and Kennett 1988) and Kakadu National Park (Legler 1982; Georges and Kennett 1989).

Early Breeding Records

It is now apparent that breeding populations of Pig-nosed Turtles have occurred in the Kakadu region since at least early this century. On 3 December 1918, P. Cahill presented 14 eggs of a "large freshwater turtle" to the Museum of Victoria (D40198). The eggs were found buried in sand at a crossing of the East Alligator River, 25.6 km above Oenpelli, and were accompanied by the further observation that the "turtles live in billabongs". Two more eggs (D40199) were presented on the 3 July 1921, but one was broken and has since been discarded. P. Cahill was probably Paddy Cahill, a famous pioneering figure who lived at Oenpelli around 1906-1922 (Mulvaney and Calaby 1985).

The large, spherical, hard-shelled eggs have been positively identified as those of *Carettochelys insculpta* and, together with their accompanying notes, represent

by far the earliest direct evidence of breeding populations of this species in Australia. The East Alligator River above the tidal reaches, but below the escarpment, is considered one of the best places for Pig-nosed Turtles by Aborigines of the Alligator Rivers region (Rosie Hart pers. comm.).

The fourteen eggs from the first clutch lodged with the Museum ranged in diameter from 43.1 mm to 44.8 mm (mean = 43.7) and the remaining egg from the second clutch had a diameter of 42.0 mm. These eggs are somewhat larger than those collected during August - October 1986 at the Daly River, which ranged in diameter from 31.1 mm to 42.1 mm (mean = 38.6 + 0.09 mm, n = 366; Gorges and Kennett 1988), but compare well with the size of eggs from Papua New Guinea (range 38-46 mm, mean = 42.9 + 0.2 mm, n = 108; Permetta and Burgin 1980).

A Turtle Hairball

A hairball was taken from a Pig-nosed Turtle collected by aborigines on 10 May 1986, from the South Alligator River in Stage III of Kakadu National Park. The hairball was a compact ovoid mass of hair mixed with small quantities of plant material and fine sand. It measured 35 x 35 x 12 mm. Together with the hairball, the stomach and intestines of the turtle were crammed with leaves and fruits of the Bush Apple *Syzygium* sp. (probably *S. forte*).

A sample of hairs was prepared as whole mounts and impressions (Brunner and Coman 1974), and examined under a light microscope. When compared to photomicrographs of hair preparations for a wide range of mammalian taxa (Brunner and Coman 1974), the scalation pattern and simple medulla of the unknown hairs eliminated all but two major taxonomic groups: kangaroos and their relatives (superfamily Macropodoidea) and flying foxes (Family Pteropodidae). It was clear that only one species was represented in the hairball.

Unfortunately, the hair guide of Brunner and Coman (1974) includes few species with northern distributions (Strahan 1983), so a reference collection of hairs from local macropod and pteropod species was obtained from the C.S.I.R.O. Wildlife Collection: Black Wallaroo (*Macropus bernardus*), Common Wallaroo (*Macropus robustus*), Antilopine Wallaroo (*Macropus antilopinus*), Agile Wallaby (*Macropus agilis*), Northern Nailtail Wallaby (*Onychogalea unguifera*), Short-eared Rock Wallaby (*Petrogale brachyotis*), Nabarlek (*Peradorcas concinna*), Black Flying Fox (*Pteropus alecto*), and Little Red Flying Fox (*Pteropus scapulatus*).

The unknown hairs differed from all macropod species in length, diameter and cross-sectional shape, and to some extent in scalation. Some macropod species were eliminated on additional differences in hair coloration (e.g. *Macropus agilis*) and structure of the hair medulla (e.g. *Onychogalea*, *Petrogale* and *Peradorcas*). However, the unknown hairs resembled those of the flying foxes in all respects, being most similar to those of the Black Flying Fox, *Pteropus alecto*. Flying foxes

often roost in trees adjacent to water, so the turtle must have come by its meal when a flying fox fell into the water. It was probably eaten as carrion.

Pig-nosed Turtles are opportunist omnivores that eat fruits, flowers, seeds and leaves that fall upon the water, and aquatic vegetation such as ribbon weed (*Vallisneria* spp.) (Cogger 1970; Schodde et al 1972; Legler 1982; Cann pers. comm.). Animal foods eaten include water snails, freshwater mussel, aquatic insect larvae and nymphs, and windblown insects. Mammalian vertebrae have been found among *Carettochelys* faeces in Kakadu National Park (Legler 1982) and the turtles have been observed to feed upon kangaroo carcases in the Daly River (John Berryman pers. comm.). Carrion is of high quality and is generally plentiful when found, and may therefore be an important component of the diet of *Carettochelys* in Kakadu National Park.

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